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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,490	08/10/2006	Ikuo Mimura	03933.000500.	3824

5514 7590 05/06/2009
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EXAMINER

DOAK, JENNIFER L

ART UNIT	PAPER NUMBER
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2872

MAIL DATE	DELIVERY MODE
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05/06/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,490	Applicant(s) MIMURA, IKUO	
	Examiner Jennifer L. Doak	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mimura (US 6318866) in view of Malek (US 4712867).

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Regarding claims 1 and 21, Examiner makes the following findings of fact: Mimura discloses a retroreflective article comprising plural triangular-pyramidal cube-corner retroreflective element pairs formed of parallel V-shaped groove groups from three directions of x direction, y direction, and z direction (Fig. 7) and set on a common plane decided by base line groups of the parallel V-shaped groove groups (Fig. 8), in which one-side groove angle formed between a cross line between a plane vertical to the common plane and to a V-groove vertical plane (Fig. 8), which includes the base line of a V-shaped groove and is vertical to the common plane (Fig. 7-8), and a reflective lateral face containing the base line of the V-shaped groove (Fig. 7-8), and the V-groove vertical plane does not form a constant angle in the reflective lateral face (Fig. 8; i.e. the multiple surface is due to the differing angle of groove depth and multiple direction cuts as shown in the figures).

Mimura does not additionally disclose that at least one of the lateral faces does not form a plane. Mimura and Malek are related as retroreflectors, and would have been known and appreciated by an ordinarily skilled artisan at the time of invention. Malek teaches that at least one of the lateral faces does not form a plane (col. 3, lns. 48-59; col. 4, lns. 4-11). The benefit of a surface that is not a plane is that it makes the retroreflector efficient over a wide range of incident radiation (col. 1, lns. 44-47).

Therefore, Examiner concludes that it would have been obvious to an ordinarily skilled artisan at the time of invention to have at least one lateral face not form a plane, as in Malek, to make the retroreflector of Mimura more efficient over a wide range of radiation incidence.

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Regarding Claim 2, the combination does not explicitly disclose the following ranges wherein at least one reflective lateral face for constituting the triangular-pyramidal cube-corner retroreflective element pairs, the one-side groove angle does not form a constant angle with the maximum deviation of 0.0001° to 0.1° from a normal one-side groove angle for forming a cube corner and a reflective lateral face forms a curved and/or multiple surface. However, Mimura does teach the partial exclusion of the excluded range, specifically citing a deviation angle range of $\pm(0.01^{\circ}$ to $0.4^{\circ})$ (col. 15, lns. 10-13), which allows a non-excluded range of $\pm(0.1^{\circ}$ to $0.4^{\circ})$, which exceeds and is outside of the excluded amount. It would have been obvious to one of ordinary skill in the art at the time the invention was made to not include the range 0.0001° to 0.1° , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233 (C.C.P.A. 1955). One would have been motivated to adjust the deviation angle to improve reflectance.

Regarding Claims 3-5, the combination additionally discloses that the internal angle of one of bottom-plane triangles formed of three bottom planes constituting the reflective elements ranges between 35° and 75° or ranges between 45° and 70° (Mimura discloses an angle of 58.76° at col. 21, ln. 66 – col. 22, ln. 13); the depth of a plane formed by the base line group of at least one-directional V-shaped groove constituting the reflective elements is different from the depth of other planes (Fig. 8).

Regarding Claim 6, the combination additionally discloses that an x-directional V-shaped groove constituting the reflective elements does not pass through the intersects of y- and z-directional V-shaped grooves and is formed at a position having an offset (Mimura, A_x) from a

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straight line connecting intersects A and B, the triangular-pyramidal cube-corer retroreflective element pairs are asymmetric pairs (Fig. 16).

Response to Arguments

Applicant's arguments filed 1/20/09 have been fully considered but they are not persuasive.

Applicant argues that (1) the Malek retroreflector is just a bead element and not a triangular-pyramidal retroreflective element (REMARKS pp. 6-7); (2) although the beads are fixed into the uneven surface, the "uneven surface 54 is not form a retroreflective element" therefore, the beads alone do not constitute a "reflective lateral face" as required by the claims, and thus no teaching/suggestion "that the reflective lateral face forms a curved surface" (p. 7).

Examiner respectfully disagrees.

First, Malek was not cited as a "triangular-pyramidal" reflector. Further, it is noted that the Malek reference teaches that "the uneven surface 54 is in the form of a series of waves with curved top surfaces. They are configured ... into sine waves. The adjacent such structures are positioned on opposite cycles ...[,]" (col. 3, lns. 52-56).

Second, Examiner notes that Applicant's interpretation that the uneven surface is not a retroreflective element is inconsistent with Malek's description: "the retroreflector of this invention has an uneven forward surface ... the smooth curves of the retroreflector 50 ...[,]" (col. 4, lns. 4-8). It is noted that while the beads may be important to the retroreflectance of the Malek invention, they are not singular to the invention, but rather the invention, a retroreflector, is the combination of at least the beads and uneven surface. Thus the limitation of a "reflective lateral face forms a curved surface" is met by the reference.

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It is further noted that "[t]he use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain." *In re Heck*, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting *In re Lemelson*, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968))." MPEP §2123.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer L. Doak whose telephone number is (571)272-9791. The examiner can normally be reached on Mon-Thurs: 7:30A-5:00P, Alt Fri: 7:30A-4:00P (EST).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. L. D./
Examiner, Art Unit 2872

/Stephone B. Allen/
Supervisory Patent Examiner
Art Unit 2872